WHAT IS CLAIMED IS:

1. A nucleic acid probe of which end is labeled with a fluorescent dye, and in which fluorescence of the fluorescent dye decreases upon hybridization, wherein the nucleic acid probe has a nucleotide sequence starting from the nucleotide number 183 in the nucleotide sequence of SEQ ID NO: 1 and having a length of 8 to 30 nucleotides, and the 5′ end of the probe is labeled with the fluorescent dye, or the nucleic acid probe has a nucleotide sequence ending at the nucleotide number 196 in the nucleotide sequence of SEQ ID NO: 2 and having a length of 7 to 30 nucleotides, and the 3′ end of the probe is labeled with the fluorescent dye.

2. The nucleic acid probe according to claim 1, wherein the nucleic acid probe has any one of the nucleotide sequences of SEQ ID NOS: 8 to 12.

3. A method for detecting a mutation comprising performing a melting curve analysis for a nucleic acid having a single nucleotide polymorphism site by using a nucleic acid probe labeled with a fluorescent dye and measuring fluorescence of the fluorescent dye, and detecting the mutation on the basis of the result of the melting curve analysis, wherein the single nucleotide polymorphism is a mutation in a nucleotide sequence in a nucleic acid encoding a β3-adrenergic receptor, resulting in a mutation replacing tryptophan at position 64 in an amino acid sequence of the β3-adrenergic receptor with arginine, and the nucleic acid probe is the nucleic acid probe as defined in claim 1 or 2.

4. The method according to claim 3, wherein a region containing the single nucleotide polymorphism site in a nucleic acid contained in a sample is amplified to obtain the nucleic acid showing the single nucleotide polymorphism.

5. The method according to claim 4, wherein the amplification is performed by a method of using a DNA polymerase.

6. The method according to claim 5, wherein the amplification is performed in the presence of a nucleic acid probe.

7. A kit for the method as defined in claim 3, which includes a nucleic acid probe of which end is labeled with a fluorescent dye, and in which fluorescence of the fluorescent dye decreases upon hybridization, wherein the nucleic acid probe has a nucleotide sequence starting from the nucleotide number 183 in the nucleotide sequence of SEQ ID NO: 1 and having a length of 8 to 30 nucleotides, and the 5′ end of the probe is labeled with the fluorescent dye, or the nucleic acid probe has a nucleotide sequence ending at the nucleotide number 196 in the nucleotide sequence of SEQ ID NO: 2 and having a length of 7 to 30 nucleotides, and the 3′ end of the probe is labeled with the fluorescent dye.

8. The kit according to claim 7, wherein the nucleic acid probe has any one of the nucleotide sequences of SEQ ID NOS: 8 to 12.

9. The kit according to claim 7 or 8, which further comprises a primer for amplifying a region containing a mutation in a nucleotide sequence in a nucleic acid encoding a β3-adrenergic receptor, resulting in a mutation replacing tryptophan at position 64 in an amino acid sequence of the β3-adrenergic receptor with arginine, by a method of using a DNA polymerase.